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Notice of Allowability

Application No.

10/525,929

Examiner

Rip A. Lee

Applicant(s)

SEKI ET AL.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to July 17, 2006.
2. ☒ The allowed claim(s) is/are 2-18.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

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| Claim 2, line 3 | replace " $C_5(R^{16}R^{17}R^{18}R^{19}R^{20})$ " with " $(C_5R^{16}R^{17}R^{18}R^{19}R^{20})$ " |
| Claim 2, line 10 | insert a comma " , " after the word "group" |
| Claim 2, line 10 | delete the open parenthesis " (" that appears before "including" |
| Claim 2, line 11 | delete the close parenthesis ") " that appears after "structure" |
| Claim 2, line 13 | delete "group" |
| | |
| Claim 4, line 11 | insert a comma " , " after the word "group" |
| Claim 4, line 11 | delete the open parenthesis " (" that appears before "including" |
| Claim 4, line 11 | delete the close parenthesis ") " that appears after "structure" |
| Claim 4, line 13 | delete "group" |
| | |
| Claim 7, line 11 | insert a comma " , " after the word "group" |
| Claim 7, line 11 | delete the open parenthesis " (" that appears before "including" |
| Claim 7, line 11 | delete the close parenthesis ") " that appears after "structure" |
| Claim 7, line 12 | delete "group" |

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| Claim 9, line 11 | insert a comma " , " after the word "group" |
| Claim 9, line 11 | delete the open parenthesis " (" that appears before "including" |
| Claim 9, line 11 | delete the close parenthesis ") " that appears after "structure" |
| Claim 9, line 12 | delete "group" |

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| Claim 10, line 3 | replace “can be” with “are” |
| Claim 10, line 5 | delete “(in the part of the six-membered ring)” |
| Claim 10, line 6 | insert a comma “ , ” after the word “group” |
| Claim 10, line 6 | delete the open parenthesis “ (” that appears before “including” |
| Claim 10, line 6 | delete the close parenthesis “) ” that appears after “structure” |
| | |
| Claim 13, line 3 | replace “which can” with “that” |
| Claim 13, line 3 | replace “form” with “forms” |

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance: Claims 2-18 are allowed over the closest references cited below.

The present invention is drawn to a series of group 4 transition metal hydride complex, a catalyst comprising said transition metal hydride complex, and a method for producing a polyolefin wherein an olefin is polymerized in the presence of said catalyst. The metal complex contains three (substituted) cyclopentadienyl or indenyl groups with specific substitution pattern as described in the claim (see claims for full structural details).

Jacobsen *et al.* (U.S. 6,043,180) teaches compounds of the general formula Cp_3MX where X is hydride, *inter alia*, and Cp is cyclopentadienyl or cyclopentadienyl derivative such as tetramethylcyclopentadienyl and pentamethylcyclopentadienyl. Compounds are used as components in supported catalysts for olefin polymerization. The reference does not teach compounds having the claimed substitution pattern.

Welborn *et al.* (U.S. 5,324,800) discloses a series of group 4 tricyclopentadienyl halides and alkyl complexes. There is no disclosure of group 4 tricyclopentadienyl hydride complexes.

Sinn *et al.* (*Angew. Chem.*, 1980) discloses $Cp_3Zr-H-AlEt_3$ complex which dissociates into free hydride in solution. The reference does not teach the compounds of the instant invention.

Seki *et al.* (U.S. 6,150,544) discloses a series of group 4 trisindenyl and indenyldicyclopentadienyl bridging hydride complexes. The compounds of the instant invention are free hydride species rather than bimetallic, bridging hydride compounds.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

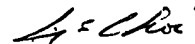
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

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September 8, 2006



LING-SUI CHOI
PRIMARY EXAMINER